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One-piece information device**

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**One-piece information device**

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The innovation concerns information devices for introducing into or applying onto a product container. Such information devices can be package inserts, attached labels or bottle hangers, when provided with a bottle neck opening or similar.

Information devices of this type are known, but many times there is a desire to obtain information devices of this type which are easy to produce, print and apply, consist of a piece of folded paper sheet and have as high information area as possible.

According to the innovation, this task is solved with a one-piece information device, consisting of a folded sheet of paper with an odd number  $x$  of fields or field bundles connected to one another and arranged in a row next to one another through fold lines, characterized by the fact that the row of fields or field bundles consist of  $(x + 1)/2$  substrate fields or substrate field bundles and  $(x - 1)/2$  support fields or support field bundles, where the support fields or support field bundles are folded along a main fold line to the same number

of connecting substrate fields or substrate field bundles and a substrate end field or substrate end field bundle is left uncovered, the substrate end field or substrate end field bundle is folded onto the neighboring support end field or support end field bundle and the combination of the substrate field or substrate field bundle and support field and support field bundle is folded over the substrate end field or substrate end field bundle and is secured on it.

Substrate fields and substrate field bundles in the sense of the innovation are those which at the first folding lie around the main fold line on the very bottom, while support fields or support field bundles are those which lie at the very top. The blanks according to the innovation always have one substrate field or one substrate field bundle more than support field or support field bundle. The main fold line is the fold line which separates the row of substrate fields or substrate field bundles from the row of support fields or support field bundles.

These information devices, which, as labels, can also be covered on an outside with an adhesive layer or heat-sealable layer, are compact and stable but can therefore be easily applied and packed with the usual machine. They consist of a single sheet of paper and therefore can be easily produced by folding. They can be produced in any arbitrary size and therefore provide incomparably large information areas.

When, in this context we speak of a sheet of paper, this also means foldable cardboard sheets or coated sheets of paper, as well as those with plastic supports and/or a metal foil lamination. When we speak of field bundles, these are understood to be at least two fields of the same dimensions lying on top of one another which were produced by folding along at least one fold line. In order to produce such field bundles, sheets of paper are used which are folded in such a way that a sheet of paper has several rows of the same number of fields on top of another through fold lines. These rows of the same number of fields, preferably three or four rows, are first folded on top of one another by fan folds or parallel folds so that a row of field bundles is obtained. However, the innovation is not restricted to information devices consisting of field bundles, but is also aimed at devices which consist of a single row of fields.

In order to facilitate folding and to exclude stresses within the information device according to the innovation, certain fields can be designed narrower than others. Preferably, at least the substrate end field or substrate end field bundle is narrower in the direction perpendicular to the fold lines between the field or field bundles connected one after another in a row than the neighboring substrate field or substrate field bundle. Preferably, the substrate end field or substrate end field bundle is narrower by 0.3 to 2 mm.

When the production of the embodiments of the information device according to the innovation is described below, we will just speak of fields for the sake of simplicity. However, this term should equally include the field bundles mentioned above.

When folding the information device according to the innovation, first the row of support fields is folded around the main fold line plane-parallel onto the corresponding number of substrate fields, so that the end substrate field remains uncovered. This is now folded over the neighboring support field, whereupon, at the other end of the row, the combination of the substrate field and support field bordering the main fold line are folded onto the substrate end field. Depending on the number  $x$ , now this combination of substrate field and support field is directly glued onto the substrate end field or heat-sealed onto it, or the attachment is done after folding of once more the two halves of the device onto one another.

According to an embodiment of the innovation, three support fields or support field bundles and then following, four substrate fields or substrate field bundles, are connected to one another in a row. In this case, first the three support fields or support field bundles are placed onto the following three substrate fields or substrate field bundles, whereupon the uncovered substrate end field or substrate end field bundle is folded around the bordering end support field or support field bundle. Then, at the other end, the combination of substrate field or substrate field bundle and support field or support field bundle bordering the main fold line is folded onto the fold line following the main line in the row, whereupon, finally, the substrate field or substrate field bundle bordering the main fold line is folded onto the substrate end field or substrate end field bundle and is attached to this, expediently by gluing or hot-sealing. This embodiment corresponds to the embodiment represented in Figures 1 and 2.

In another expedient embodiment according to the innovation, only five fields or field bundles arranged behind one another in a row are provided, two support fields or support field bundles and three substrate fields or substrate field bundles. Again, in this embodiment, the support fields or support field bundles are folded around the main fold line onto the following two substrate fields or substrate field bundles, whereupon the uncovered substrate end field or substrate end field bundle is turned onto the neighboring support field or support field bundle in the end position. Now, the combination of substrate field or substrate field bundle and support field or support field bundle bordering the main fold line at the other end is folded onto the substrate end field or substrate end field bundle so that the support field or support field bundle lying on the main fold line arrives into a direct coverage on the substrate end field or substrate end field bundle and is secured on it, again, expediently, by hot-sealing or gluing. This embodiment corresponds to that shown in Figures 3 and 4.

When more than seven fields or field bundles are provided and the number  $x$  is, for example, 9, 11 or more, fields or field bundles beyond the number 7 are folded in the form of a fan fold and/or parallel fold under the combination of substrate field or substrate field bundle and support field or support field bundle bordering the main fold line, so that the same type of securing as in the embodiment is a field number  $x = 7$ , if possible.

As already mentioned, the joining of the fields or field bundles is done expediently by adhesive or by hot-sealing joining. Since the access to the information should be easy and since the paper surface should not be damaged when opening the information device, it is expedient to use such an adhesive or sealing bonding that can be separated easily, that is, pulled off without damaging the paper.

The bonding of the combination of the substrate field or substrate field bundle and support field or support field bundle bordering the main line with the substrate field or substrate field bundle can be done on the entire surface or only partially, such as in spots or along a line in the edge region.

In order to facilitate folding, expediently the fold lines are formed at least partially as perforation lines.

The innovation is explained further with the drawing, in which

- Figure 1 is a blank of a first preferred embodiment of an information device according to the innovation,
- Figure 2 shows a perspective representation of the innovation device from the blank according to Figure 1 on an enlarged scale,
- Figure 3 is a blank of the second preferred embodiment of an information device according to the innovation,
- Figure 4 is a perspective representation of the information device from the blank according to Figure 3 in the finished state, and
- Figure 5 is a blank for the production of an information device according to the invention, made of field bundles.

The embodiment shown in Figures 1 and 2 has three support fields 1 to 3 and four substrate fields 4 to 7. The main fold line has the reference number 8.

In the production of the finished information device shown in Figure 2, first the support fields 1 to 3 are folded over the substrate fields 4 to 6, so that the substrate end field 7 remains uncovered. This is then folded onto the back side of support field 1. Then, the combination of fields 3 and 4, lying plane-parallel on one another, is folded onto support field 2 so that fields 4 and 7 lie next to each other. In a last step, these are folded on one another and bonded together with an adhesive layer 9.

The embodiment shown in Figures 3 and 4 of an information device according to the innovation consists now of five fields, two support fields 10 and 11 and three substrate fields 12 to 14.

Again, first the support fields 10 and 11 are folded along the main fold line 15 onto substrate fields 12 and 13, so that substrate end field 14 remains uncovered. This is now folded over

the support field 10, whereupon the combination of fields 11 and 12, lying on one another in a plane-parallel fashion, is folded onto the substrate end field 14 and secured on it with the aid of adhesive layer 16.

The blank shown in Figure 5 consists of three rows of 7 fields each connected to one another with fold lines 17 and 18 and having main fold line 19. The blank is first folded along fold lines 17 and 18 in a fan-like manner so that one row of seven field bundles, each consisting of three layers, is formed. The fold line 19 is the main fold line. The seven field bundles, each consisting of three layers or fields, are then further folded corresponding to the embodiment according to Figures 1 and 2.

### Protection Claims

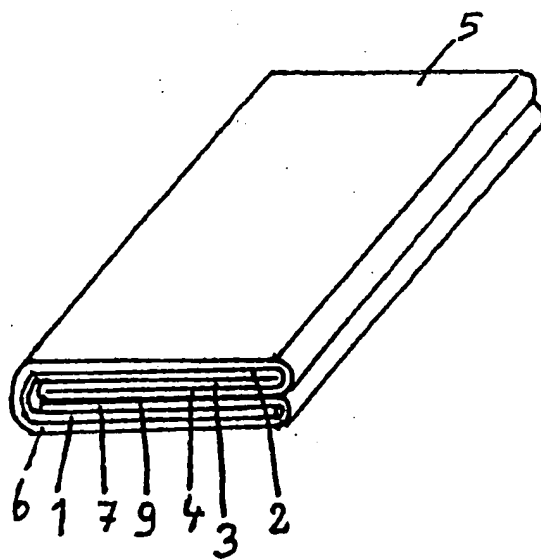
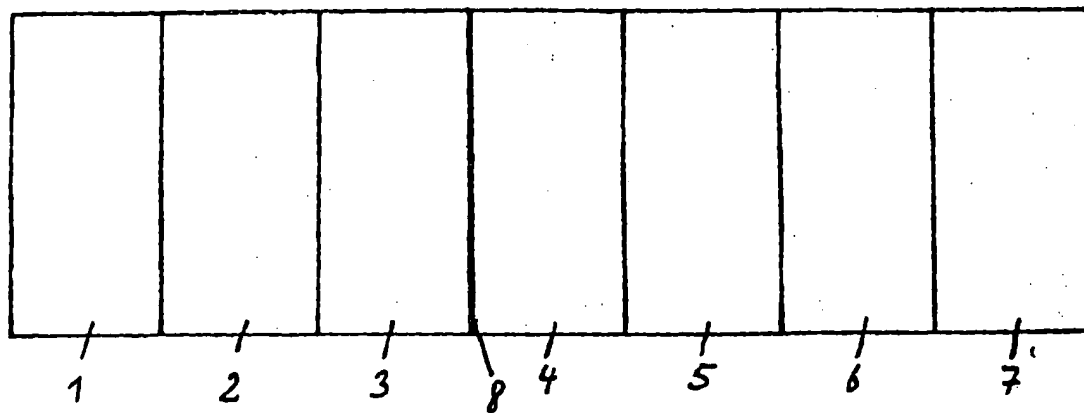
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1. One-piece information device consisting of a folded sheet of paper with an odd number  $x$  of fields or field bundles lying next to one another in a row and joined together by fold lines, characterized by the fact that the row of fields or field bundles (1 to 7; 10 to 14) consists of  $(x + 1)/2$  substrate fields or substrate field bundles (4 to 7; 12 to 14) and  $(x - 1)/2$  support fields or support field bundles (1 to 3; 10 to 11), where the support fields or support field bundles (1 to 3; 10 to 11) are folded along a main fold line (8, 15) onto the same number of following substrate fields or substrate field bundles (4 to 6; 12 to 13) and leave a substrate end field or substrate end field bundle (7, 14) uncovered, the substrate end field or substrate end field bundle (7, 14) is folded onto the neighboring support end field or support end field bundle (1, 10) and the combination of the substrate field or substrate field bundle (4, 12) and support field or support field bundle (3, 11) bordering the main fold line (8, 15) is folded over the substrate end field or substrate end field bundle (7, 14) and is secured on it.
2. Information device according to Claim 1, **characterized by the fact** that the substrate end field or substrate end field bundle (7, 14) is narrower in the direction perpendicular to the fold lines between the fields or field bundles bonded together in a row (1 to 7; 10 to 14), preferably by 0.3 to 2 mm, than the neighboring substrate field or substrate field bundle (6, 13).
3. Information device according to Claim 1 or 2, **characterized by the fact** that the field bundles consist of at least two fields folded over one another, connected together through fold lines, which lie perpendicularly to the fold lines between the field bundles bonded together in a row.
4. Information device according to one of Claims 1 to 3, **characterized by the fact** that it has three support fields or support field bundles (1 to 3) connected with one another in a row and following four substrate fields or substrate field bundles (4 to 7) and that the combination of the substrate field or substrate field bundle (4) and support field or support field bundle (3) bordering the main fold line (8) is connected through the



outside of the substrate field or substrate field bundle (3) bordering the main fold line (8) with the substrate end field or substrate end field bundle (7).

5. Information device according to one of Claims 1 to 3, **characterized by the fact** that it has two support fields or support field bundles (10, 11) and three substrate fields or substrate field bundles (12 to 14), following the former through the main fold line (15) and that the combination of the substrate field or substrate field bundle (12) and support field or support field bundle (11) bordering the main fold line (15) are bonded through the outside of the support field or support field bundle (11) bordering the main fold line (15) to the substrate field or substrate field bundle (15).
6. Information device according to one of Claims 1 to 5, **characterized by the fact** that the fold lines are at least partially designed as perforation lines.
7. Information device according to one of Claims 1 to 6, **characterized by the fact** that the combination of the substrate field or substrate field bundle (4, 12) and the support field or support field bundle (3, 11) bordering the main fold lines (8, 15) is bonded over the entire area or over a part of the area to the substrate end field or substrate end field bundle (7, 14).
8. Information device according to Claim 7, **characterized by the fact** that the bonding of the fields or field bundles is a separable adhesive bond.



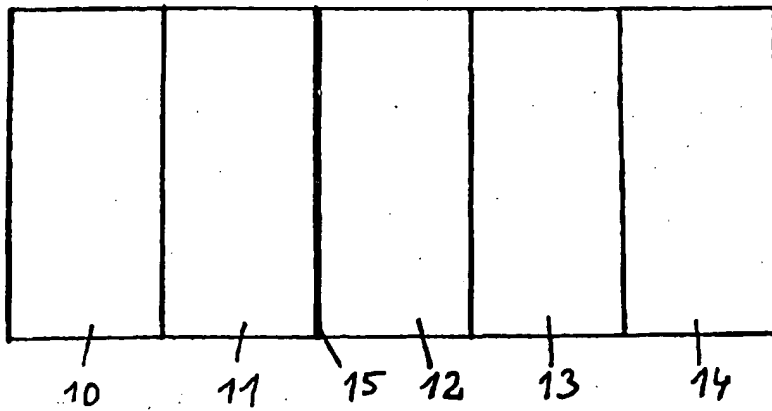


Fig. 3

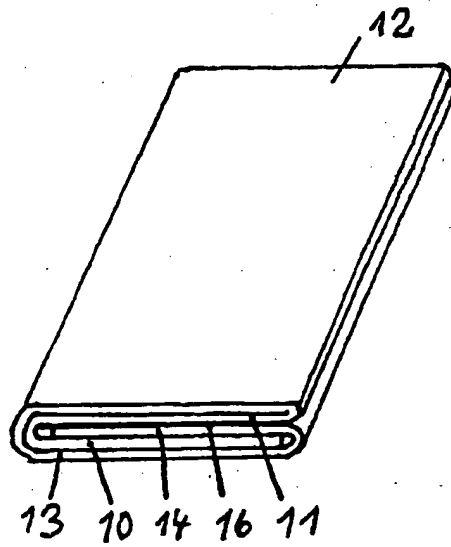


Fig. 4

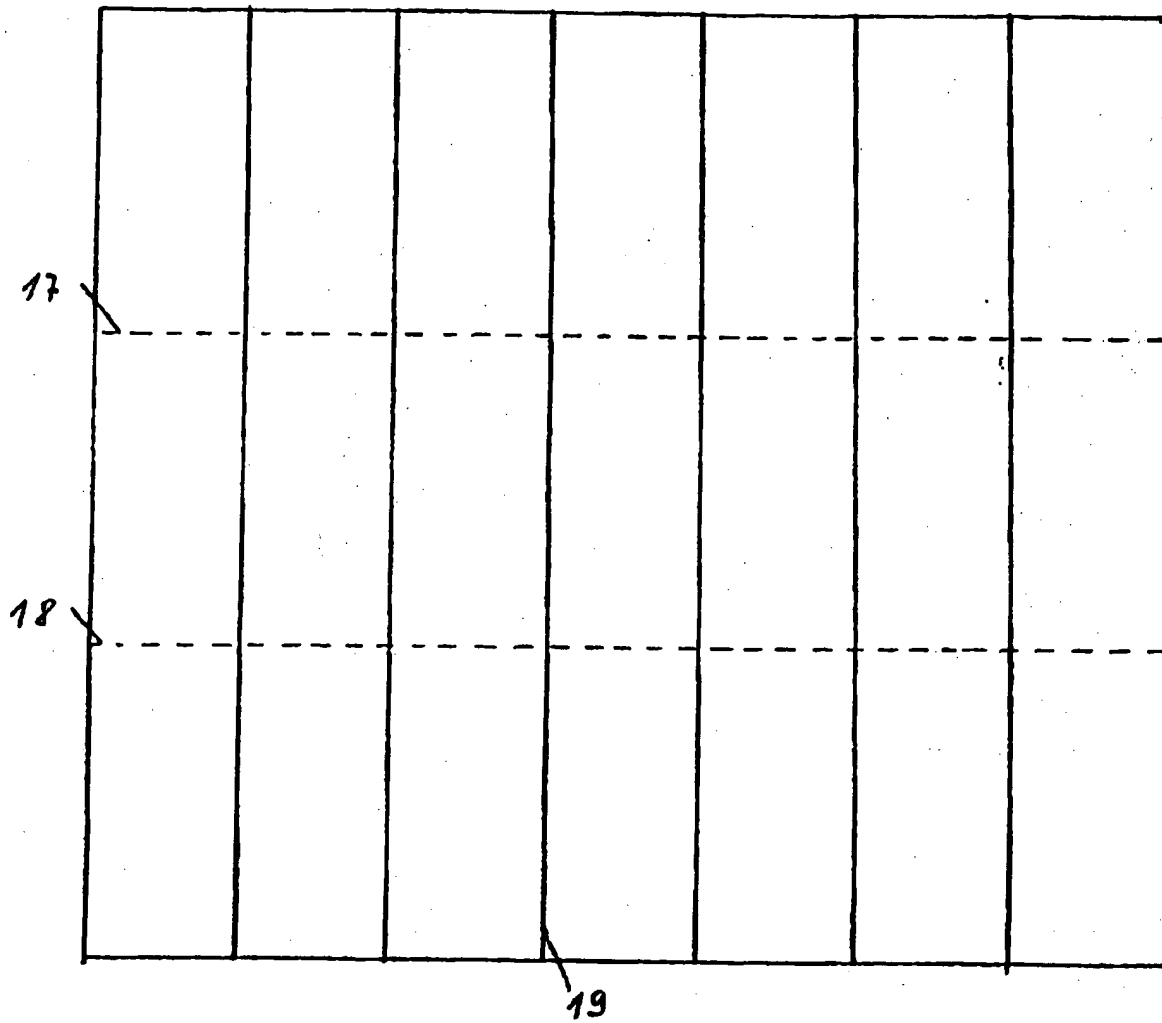


Fig. 5